ATTORNEY DOCKET: PD-02W173
PATENT

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. Please amend as follows:

1. (Currently Amended) A bioagent detecting system for detecting an elevated presence of bioagents in the air comprising:

~~a first group of laser diodes of an array of laser diodes for generating a first ultraviolet wavelength to fluoresce an aromatic protein~~;

a blaze grating to separate ultraviolet wavelengths provided by a laser source into first and second ultraviolet wavelengths to provide a pair of wavelengths having a wavelength separation therebetween of no more than approximately five nanometers;

an output coupler coupled to the blaze grating to direct the first and second ultraviolet wavelengths to fluoresce an aromatic protein;

~~a second group of laser diodes of the array for generating a second ultraviolet wavelength to further fluoresce the same aromatic protein~~;

a detector ~~positioned within the first and second groups of laser diodes~~ to detect first and second fluorescence levels of the aromatic protein received through the output coupler and associated respectively with the first and second ultraviolet wavelengths; and

a system controller to correlate the first and second detected fluorescence levels with atmospheric absorption levels for the aromatic protein at the first and second ultraviolet wavelengths to determine if an ambient threshold is exceeded by a predetermined amount,

wherein the first and second ultraviolet wavelengths ~~comprise a pair of ultraviolet wavelengths selected to~~ have different absorption levels for the aromatic protein which are substantially unaffected by atmospheric levels of the aromatic protein.

2. (Currently Amended) The system of claim 1 wherein the detector comprises avalanche photo diodes to detect the fluorescence levels, and

wherein the system further comprises a collimator to collimate ultraviolet laser light generated provided by the blaze grating ~~by the laser diodes of the array~~ and to provide emissions back to the detector[[,]]

~~wherein the first and second ultraviolet wavelengths comprise a pair of wavelengths;~~

~~wherein the array comprises additional groups of laser diodes for generating other pairs of wavelengths in a range of wavelengths which cause the aromatic protein to fluoresce, the atmospheric absorption levels for the wavelengths of each pair being substantially the same, and~~

~~wherein the system controller is to repeat the correlating for the other pairs of wavelengths and is to determine when a bioagent is likely to be present from the correlated detected fluorescence levels from the repeated correlations of the wavelength pairs.~~

3. (Currently Amended) The system of claim 1 ~~wherein the array of laser diodes comprises an array of wavelength diverse laser diodes to generate the pairs of wavelengths within the range of wavelengths;~~

~~wherein prior to generating the pairs, the system controller is to substantially simultaneously address diodes of the array to generate the more than one wavelength substantially simultaneously; and~~

wherein the system controller is to determine whether the detected fluorescence level indicates that the aromatic protein exceeds an ambient atmospheric level resulting from the substantially simultaneous transmission of the more than one ultraviolet wavelength.

4. (Currently Amended) The system of claim 1 wherein the bioagent has an aromatic-protein shell comprising Tryptophan, and

wherein the range of wavelengths ranges from between approximately 270 and 340 nanometers ~~and the pairs of wavelengths are separated by approximately between one and five nanometers~~.

5. (Currently Amended) The system of claim 1 wherein the laser source comprises an array of laser diodes for generating the ultraviolet wavelengths.

~~A bioagent detection apparatus comprising:~~

~~a laser source to generate laser light at first and second ultraviolet wavelengths for fluorescing an aromatic protein;~~

~~a detector to detect first and second fluorescence levels of the aromatic protein resulting from the respective transmission of the first and second ultraviolet wavelengths; and~~

~~a system controller to correlate the first and second detected fluorescence levels with atmospheric absorption levels for the aromatic protein at the first and second ultraviolet wavelengths to determine if an ambient threshold of the aromatic protein is exceeded by a predetermined amount;~~

~~wherein the first and second ultraviolet wavelengths comprise a pair of ultraviolet wavelengths selected to have different absorption levels for the aromatic protein which are substantially unaffected by atmospheric levels of the aromatic protein.~~

Claims 6 – 10 (Canceled)

11. (Currently Amended) The system ~~apparatus~~ of claim [[5]] 4 ~~wherein an aromatic protein shell of a biological agent comprises Tryptophan;~~

wherein the detected fluorescence level indicates a detection of the biological agent, and

wherein the biological agent comprises at least one of Anthrax, Botox, Staphylococcal Enterotoxin B, and Clostridium Perfringens.

12. (Currently Amended) The system ~~apparatus~~ of claim 11 wherein the first and second ultraviolet wavelengths are each to excite the Tryptophan below an emission peak of the Tryptophan.

13. (Currently Amended) The system ~~apparatus~~ of claim [[5]] 1 wherein the system controller is to receive a detection signal from the detector approximately proportional to the fluorescence level,

wherein the system controller is to generate a notification signal when the detection signal indicates that a threshold is exceeded.

14. ((Currently Amended) The system ~~apparatus~~ of claim 13 wherein the threshold is based on an ambient level of the aromatic protein present.

Claims 15. - 18. (Canceled)

19. (Currently Amended) The system ~~apparatus~~ of claim [[5]] 1 further comprising a collimator to collimate ~~the~~ laser light provided by the blaze grating.

20. (Currently Amended) The system ~~apparatus~~ of claim 19 wherein the collimator collimates the laser light for direction toward a suspect cloud in the atmosphere.

21. (Currently Amended) The system ~~apparatus~~ of claim 20 further comprising a range finder to determine a distance to the suspect cloud, the system controller to use the distance to determine thresholds for detection based on an absorption-wavelength curve for the aromatic protein.

22. (Currently Amended) The system ~~apparatus~~ of claim [[5]] 1 wherein the laser source comprises a tunable-fiber laser to generate the first and second ultraviolet wavelengths, ~~the tunable-fiber laser comprising:~~ and

wherein the ~~a~~ Blaze grating ~~to receive the first and second ultraviolet wavelengths from the array of diodes and~~ directs a selected wavelength through the ~~an~~ output coupler based on a control signal from a system controller.

23. (Currently Amended) The system ~~apparatus~~ of claim ~~15~~ 5 wherein the system ~~apparatus~~ is a hand-held bioagent detector comprising a compartment adapted to receive batteries for supplying power for at least the array of laser ~~addressable~~ diodes, the detector, and the system controller.

Claims 24 - 27 (Canceled)